U.S. Army
Environmental
Center

NO FURTHER ACTION DECISION UNDER CERCLA

STUDY AREA 43L
HISTORIC GAS STATION SITES

FORT DEVENS, MASSACHUSETTS

CONTRACT DAAA15-91-D-0008

U.S. ARMY ENVIRONMENTAL CENTER
ABERDEEN PROVING GROUND, MARYLAND

JANUARY 1995

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FORT DEVENS, MASSACHUSETTS

Prepared for:

U.S. Army Environmental Center
Aberdeen Proving Ground, Maryland
Contract DAAA15-91-0008

Prepared by:

ABB Environmental Services, Inc.
Portland, Maine
Project No. 7053-12

JANUARY 1995

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EXECUTIVE SUMMARY

Investigations of Study Area 43L (Historic Gas Station Site) at Fort Devens, Massachusetts have resulted in the decision that no further hazardous waste studies or remediation are required at this site. Study Area 43L was identified in the Federal Facilities Agreement between the U.S. Environmental Protection Agency and the U.S. Department of Defense as a potential site of contamination.

Fort Devens was placed on the National Priorities List under the Comprehensive Environmental Response, Compensation and Liability Act as amended by the Superfund Amendments and Reauthorization Act on December 21, 1989. In addition, under Public Law 101-510, the Defense Base Realignment and Closure Act of 1990, Fort Devens was selected for cessation of operations and closure. In accordance with these acts, numerous studies, including a Master Environmental Plan, an Enhanced Preliminary Assessment, and an underground storage tank removal program, have been conducted which address Study Area 43L.

An investigation of subsurface soil at Study Area 43L was conducted by Kurz Associates in 1989 as part of an underground storage tank removal program at Fort Devens. The three underground storage tanks were removed, and were observed to be in good condition. The headspace of nine soil samples from each excavation were screened for total volatile organic compounds with a photoionization detector. Concentrations ranged from 0.4 to 6.8 parts per million. Four composite soil samples were collected from the excavations for total petroleum hydrocarbon analysis. The concentrations ranged from 57 to 108 parts per million.

After assessing the distribution and migration potential of the contaminants at the station, it was concluded by Fort Devens personnel that groundwater was not being impacted and that current site conditions, at the time, posed no significant risk to potential receptors. Based on this assessment, the excavations were backfilled, and no additional investigation was conducted.

Based on the recommendations in the Kurz report, ABB Environmental Services, Inc. did not conduct a site investigation at SA 43L during the 1992 field program. Based on the results of the work by Kurz Associates, it does not appear that the past activities at SA 43L have impacted the soil quality in the vicinity of the former underground storage

tank locations. The decision has been made to remove Study Area 43L from further consideration in the Installation Restoration Program.

1.0 INTRODUCTION

This decision document has been prepared to support a no further action decision at Study Area 43L - Historic Gas Station Site (SA 43L) at Fort Devens, Massachusetts. The report was prepared as part of the U.S. Department of Defense (DOD) Base Realignment and Closure (BRAC) program to assess the nature and extent of contamination associated with site operations at Fort Devens.

In conjunction with the Army's Installation Restoration Program (IRP), Fort Devens and the U.S. Army Environmental Center (USAEC; formerly the U.S. Army Toxic and Hazardous Materials Agency) initiated a Master Environmental Plan (MEP) in 1988. The MEP consists of assessments of the environmental status of SAs, specifies necessary investigations, and provides recommendations for response actions with the objective of identifying priorities for environmental restoration at Fort Devens. The Historic Gas Station Sites were identified in the MEP as potential areas of contamination. On December 21, 1989, Fort Devens was placed on the National Priorities List under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) as amended by the Superfund Amendments and Reauthorization Act.

An Enhanced Preliminary Assessment (PA) was also performed at Fort Devens to address areas not normally included in the CERCLA process, but requiring review prior to closure. A final version of the PA report was completed in April 1992.

Under Public Law 101-510, the Defense Base Realignment and Closure Act of 1990, Fort Devens has been selected for cessation of operations and closure. An important aspect of BRAC actions is to determine environmental restoration requirements before property transfer can be considered.

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2.0 BACKGROUND AND PHYSICAL SETTING

2.1 DESCRIPTION AND LAND USE

Fort Devens is located approximately 35 miles northwest of Boston, Massachusetts, within Middlesex and Worcester counties. The installation consists of approximately 9,280 acres and includes portions of the towns of Ayer, Harvard, Lancaster and Shirley. Cities in the vicinity include Fitchburg, Leominster and Lowell. Land surfaces range from about 200 feet above mean sea level (MSL) along the Nashua River in the northern portion of the installation to 450 feet above MSL in the southern portion of the installation.

Fort Devens was established in 1917 as Camp Devens, a temporary training camp for soldiers from the New England area. In 1931, the camp became a permanent installation and was redesignated as Fort Devens. Throughout its history, Fort Devens has served as a training and induction center for military personnel and a unit mobilization and demobilization site. All or portions of this function occurred during World Wars I and II, the Korean and Vietnam conflicts, and operations Desert Shield and Desert Storm. The primary mission of Fort Devens is to command, train, and provide logistical support for non-divisional troop units. The installation also supports that portion of the U.S. Army Intelligence School located at Fort Devens, for the Army Readiness Region, for Reserve Components, and for Army Reserve and National Guard in the New England area.

Fort Devens currently consists of three major land use areas: Main Post, South Post, and North Post (Figure 2-1).

The majority of the facilities on Fort Devens are located in the Main Post area, north of Massachusetts Highway 2. The Nashua River intersects the Main Post along its western edge. The Main Post provides all of the on-post housing, including over 1,700 family units and 9,800 bachelor units (barracks and unaccompanied officer's quarters). Other facilities on the Main Post include community support activities (such as a shoppette, cafeteria, post exchange, commissary, bowling alley, golf course, and hospital), administrative buildings, classrooms and training facilities, maintenance facilities, and ammunition storage facilities. The Historic Gas Station Sites, including SA 43L, are located on the Main Post.

The South Post is located south of Massachusetts Highway 2 and contains individual training areas designated for troop training, range activities, and a drop zone. The Nashua River bounds the South Post on the northeast side.

The North Post is directly north of the Main Post. The principal activities on the North Post are the Douglas E. Moore Army Airfield, and the installation Waste Water Treatment Plant.

2.2 REGIONAL GEOLOGY

Fort Devens is near the western boundary of the Seaboard Lowland Section of the New England-Maritime Physiographic province (Jahns, 1953). It is adjacent to the Worcester County Plateau of the Central Uplands province and part of the installation lies within the province (Koteff, 1966). The land surface is almost completely covered with unconsolidated glacial outwash deposits, resulting in few bedrock outcrops. The surficial deposits are underlain by a highly complex assemblage of intensely folded and faulted metasedimentary rocks with occasional igneous intrusions. The geomorphology of the region is dominated by glacial features such as outwash plains, kames, kame terraces, drumlins, and eskers.

2.3 REGIONAL HYDROGEOLOGY

Groundwater at Fort Devens occurs largely in the permeable glacial-deltaic outwash deposits of sand, gravel, and boulders. Well yields within these sediments are dependent upon the hydraulic characteristics of the aquifer and can range from 2 to over 300 gallons per minute (gpm). Small amounts of groundwater can be obtained from fractured bedrock with yields ranging from 2 to 10 gpm. Minor amounts of groundwater may be found in thin, permeable glacial lenses elsewhere on the installation. The primary hydrogeologic feature at Fort Devens is the Nashua River, which flows through the installation in a south to north direction, with an average discharge rate of 55 cubic feet per second. In addition to the Nashua River, the terrain is dissected by numerous brooks that are associated with attendant wetlands. There are also several kettle ponds and one kettle lake located within the installation.

2.4 STUDY AREA DESCRIPTION AND HISTORY

SA 43L, one of the 19 Historic Gas Station Sites, is located on the corner of Lake George Street and Hattonsville Road, adjacent to Building 2601, in the southwestern portion of the Main Post (Figure 2-2). The structures of the historic gas station at SA 43L consisted of a pump island and a small gasoline pumphouse. The station was a Type B station which had two 5,000-gallon underground storage tanks (USTs), located on each side of the pump island and oriented parallel to it, and one UST located about 30 feet south of Building T2601. The station was used during World War II as a vehicle motor pool to support military operations. The motor pool operations were discontinued during the late 1940s or early 1950s. No records were available on the decommissioning of this motor pool; however, it did appear that the USTs were not removed at that time. The tanks were ultimately removed in 1989. The area around the reported location of SA 43L is currently used as storage yard for military vehicles and Building T 2601 appears to be a maintenance facility for the vehicles stored in the yard. The pumphouse associated with the historic gas station (Building P-179) is still present at the site. The yard and maintenance facility are paved and surrounded by chain-link fence with a locked gate located on the northern side of the yard (see Figure 2-2).

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3.0 RELATED INVESTIGATIONS

3.1 MASTER ENVIRONMENTAL PLAN

SA 43, the Historic Gas Station Sites, was identified as a possible source for release of contaminants into the environment. The 19 gas stations were identified from a circa 1941 map (Barbour, 1941). The MEP recommended that the remaining USTs be located, and residual contamination in soil be removed (Biang, et al., 1992).

The MEP reports that three 5,000-gallon USTs were removed from SA 43L by Franklin Environmental Services. Tanks #5 and #6 were removed on November 29 and 30, 1989. The tanks were observed to be in good condition. Both tanks contained about 100 gallons of fuel and water which was removed by Franklin Environmental Services (Kurz Associates, 1991). Approximately 150 cubic yards of contaminated soil was removed. Nine soil samples were collected from each tank excavation and screened for volatile organic compounds (VOCs) with a photoionization detector (PID). Two composite soil samples were collected from each excavation and analyzed for total petroleum hydrocarbon compounds (TPHC). VOCs were detected in the tank #5 samples at 0.4 to 3.4 parts per million (ppm). VOCs ranged from 0.8 to 6.8 ppm in tank #6 samples. The composite soil samples from the tank #5 excavation contained 57 and 95 ppm TPHC and the composite samples from tank #6 contained 98 and 108 ppm TPHC. Based on these results, the excavations were backfilled and closed (Biang, et al., 1992).

The third UST, tank #13, was removed on December 5, 1989. The tank was found to be in good condition. The tank contained about 48 inches of water and waste oil which was removed by Franklin Environmental Services (Kurz Associates, 1991). Approximately 3 cubic yards of soil was removed. Groundwater was not encountered during the removal. Nine soil samples were collected from each tank excavation and screened for VOCs with a PID. Two composite soil samples were collected from the excavation and analyzed for TPHC. VOC concentrations ranged from nondetect to 1.0 ppm. The composite soil samples from the tank #13 excavation contained 280 and 300 ppm TPHC. Based on these results, more soil was excavated on January 11, 1990. Two composite samples were collected from the excavation. TPHC was detected in one sample at a concentration of 80 ppm. The excavation was then backfilled and closed (Biang, et al., 1992). A copy of the Kurz Associates report is available from Fort Devens BRAC Environmental Coordinator's office.

3.2 ENHANCED PRELIMINARY ASSESSMENT

The PA included a review of the study and recommendations presented in the MEP and considered other areas that might require evaluation due to the closure of Fort Devens. No additional findings or recommendations for SA 43L were provided in the PA.

3.3 SITE INVESTIGATION REPORT

The site investigation (SI) was initiated in June 1992 and included the following 13 Group 2 and 7 SAs originally identified in the MEP:

- SA 13 Landfill No. 9
- **SA 43 Historic Gas Stations (19 Sites)**
- SA 45 Lake George Street Vehicle Wash Area
- SA 49 Building 3602 Leaking Underground Storage Tank (LUST) Site
- SA 56 Building 2417 LUST Site
- SA 57 Building 3713 Fuel Oil Spill
- SA 58 Buildings 2648 and 2650 Fuel Oil Spills
- SA 12 Landfill No. 8
- SA 14 Landfill No. 10
- SA 27 Waste Explosive Detonation Range (Hotel)
- SA 28 Waste Explosive Detonation Range (Training Area 14)
- SA 41 Unauthorized Dumping Area (Site A)
- SA 42 Popping Furnace

The SI was conducted by ABB-ES under contract with the USAEC. The Final Site Investigation Report was issued May 1993. The purpose of the SI was to verify the presence or absence of environmental contamination and to determine whether further investigation or remediation was warranted.

Based on the recommendations in the Kurz Associates report (Kurz Associates, 1991), ABB-ES did not conduct a field investigation at SA 43L during the 1992 field program (ABB-ES, 1993).

4.0 CONTAMINATION ASSESSMENT

An investigation of subsurface soil at Study Area 43L was conducted by Kurz Associates in 1989 as part of a UST removal program at Fort Devens. Soil samples were collected from each excavation. The results of the analyses are presented in the following paragraphs.

4.1 SOILS

The headspace of nine soil samples from each tank excavation were screened for total volatile organic compounds with a photoionization detector. Concentrations ranged from 0.4 to 6.8 ppm. Four composite soil samples were collected from the excavations for TPHC analysis. The concentrations ranged from 57 to 108 ppm.

After assessing the distribution and migration potential of the contaminants at the station, it was concluded by Fort Devens personnel that groundwater was not being impacted and that current site conditions, at the time, posed no significant risk to potential receptors. Based on this assessment, the excavations were backfilled, and no additional investigation was conducted.

4.2 GROUNDWATER

Groundwater data is not available for SA 43L, as groundwater was not encountered during the tank excavations performed.

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5.0 PRELIMINARY HUMAN HEALTH RISK EVALUATION

After assessing the distribution and migration potential of the contaminants at the station, it was concluded by Fort Devens personnel that groundwater was not likely impacted by the petroleum concentrations detected in unsaturated soil at the site and that site conditions did not pose a significant risk to potential receptors. Based on this assessment, the excavations were backfilled, and no additional investigation was conducted. Prior to backfilling, Kurz Associates collected four composite soil samples from the excavation walls which were analyzed for TPHC. TPHC levels ranged from 57 to 108 ppm. Based on a comparison of these results against the calculated risk-based commercial/industrial concentration value of 1,700 ppm for gasoline, and against the Massachusetts Contingency Plan's most conservative concentration of 500 ppm, there should be no significant risk to public health from soil contamination at SA 43L.

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6.0 PRELIMINARY ECOLOGICAL RISK EVALUATION

A preliminary ecological risk evaluation was not prepared for SA 43L because contaminants associated with a UST would be confined to subsurface soil, and would not impact any ecological receptors.

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7.0 CONCLUSIONS

ABB-ES used the results of previous field investigations at SA 43L to determine if the historic gas station activities had adversely impacted the soil or groundwater quality in the area around SA 43L. Based on the results of the work by Kurz Associates, it does not appear that the past activities at SA 43L have impacted the soil and groundwater quality in the vicinity of the former UST locations. Therefore, no further action is recommended for this historic gas station.

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8.0 DECISION

On the basis of the findings at SA 43L, there is no evidence or reason to conclude that petroleum contamination from the former USTs has caused significant environmental contamination or pose a threat to human health or the environment. The decision has been made to remove SA 43L from further consideration in the IRP process. In accordance with CERCLA 120 (h) (3), all remedial actions necessary have taken place, and the USEPA and MADEP signatures constitute concurrence in accordance with the same.

James C Chambers — 18 JAN 95

JAMES C. CHAMBERS
BRAC Environmental Coordinator
Date

U.S. ENVIRONMENTAL PROTECTION AGENCY

James P. Byrne — 1/18/95

JAMES P. BYRNE
Fort Devens Remedial Project Manager
Date

[X] Concur

[ ] Non-concur (Please provide reasons for non-concurrence in writing)

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

D. Lynne Welsh — 1/18/95

D. LYNNE WELSH
Section Chief, Federal Facilities - CERO
Date

[X] Concur

[ ] Non-concur (Please provide reasons for non-concurrence in writing)

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ABB-ES	ABB Environmental Services, Inc.
BRAC	Base Realignment and Closure
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DOD	U.S. Department of Defense
gpm	gallons per minute
IRP	Installation Restoration Program
LUST	leaking underground storage tank
MEP	Master Environmental Plan
MSL	mean sea level
PA	Enhanced Preliminary Assessment
PID	photoionization detector
ppm	part per million
SA	Study Area
SI	site investigation
TPHC	total petroleum hydrocarbon compounds
USAEC	U.S. Army Environmental Center
UST	underground storage tank
VOC	volatile organic compound

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ABB Environmental Services, Inc. (ABB-ES), 1993. "Final Site Investigation Report - Groups 2, 7, and Historic Gas Stations, Fort Devens, Massachusetts"; Data Item A009; prepared for the U.S. Army Environmental Center by ABB Environmental Services, Inc., Portland, ME, May.

Barbour, F.A., c. 1941. "Fort Devens, Mass. General Layout Plan"; Plan 6101-710.1B; prepared for Construction Division, Office of Quartermaster General; Scale approximately 1:7,000.

Biang, C.A., R.W. Peters, R.H. Pearl, and S.Y. Tsai, 1992. "Master Environmental Plan for Fort Devens, Massachusetts"; prepared for U.S. Army Toxic and Hazardous Materials Agency; prepared by Argonne National Laboratory, Environmental Assessment and Information Sciences Division; Argonne, IL; Final, April.

Jahns, R.H., 1953. "Surficial Geology of the Ayer Quadrangle, Massachusetts"; Scale 1:31,680; U.S. Geological Survey.

Koteff, C., 1966. "Surficial Geologic Map of the Clinton Quadrangle, Worcester County, Massachusetts;" U.S. Geological Survey Map GQ-567.

Kurz Associates Inc., 1991. "Underground Storage Tank Removal and Related Environmental Investigations, Fort Devens Military Reservation, Harvard, Massachusetts"; prepared for Franklin Environmental Services, Inc., Wrentham, MA; Bridgewater, MA; January.

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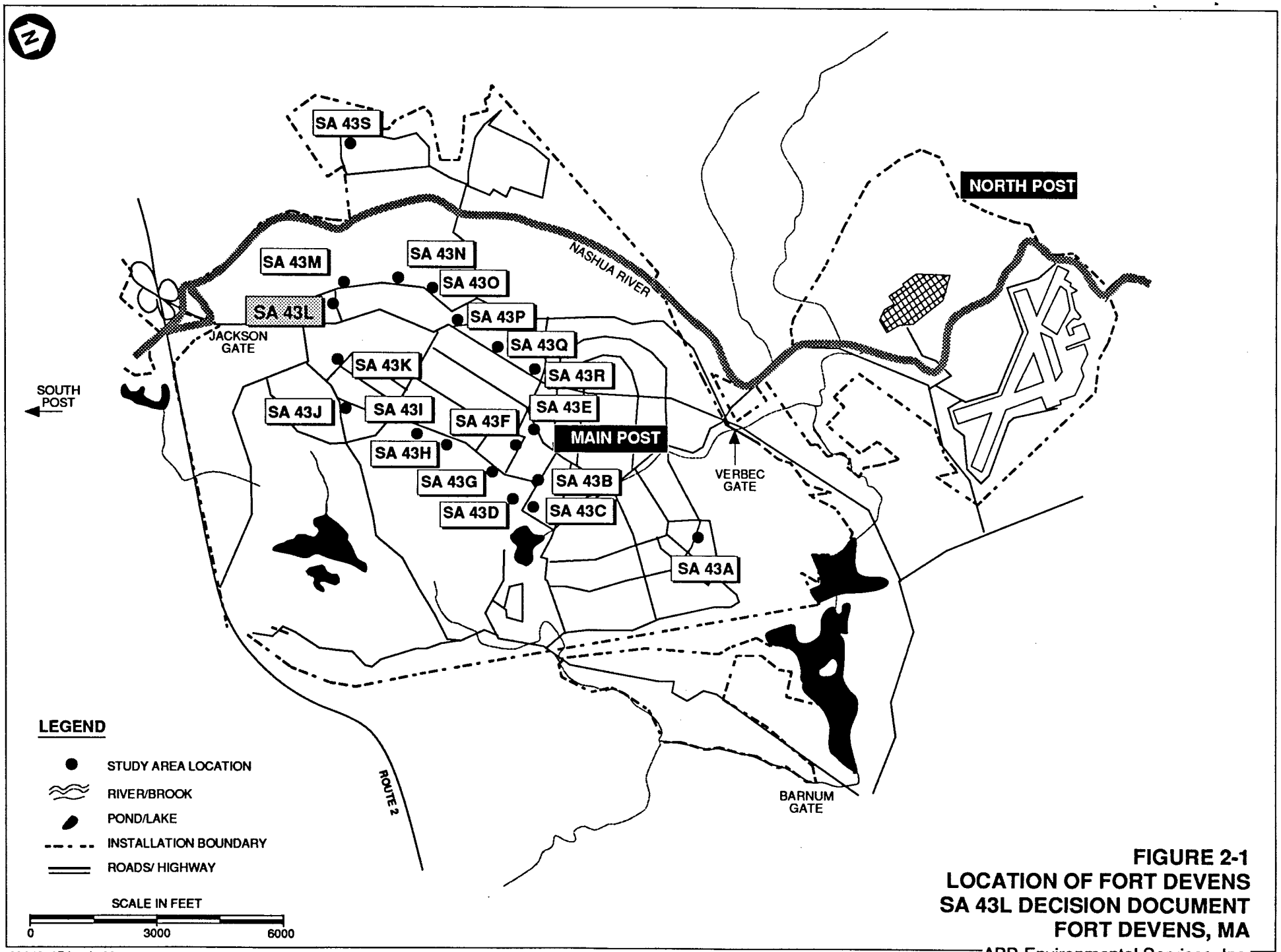
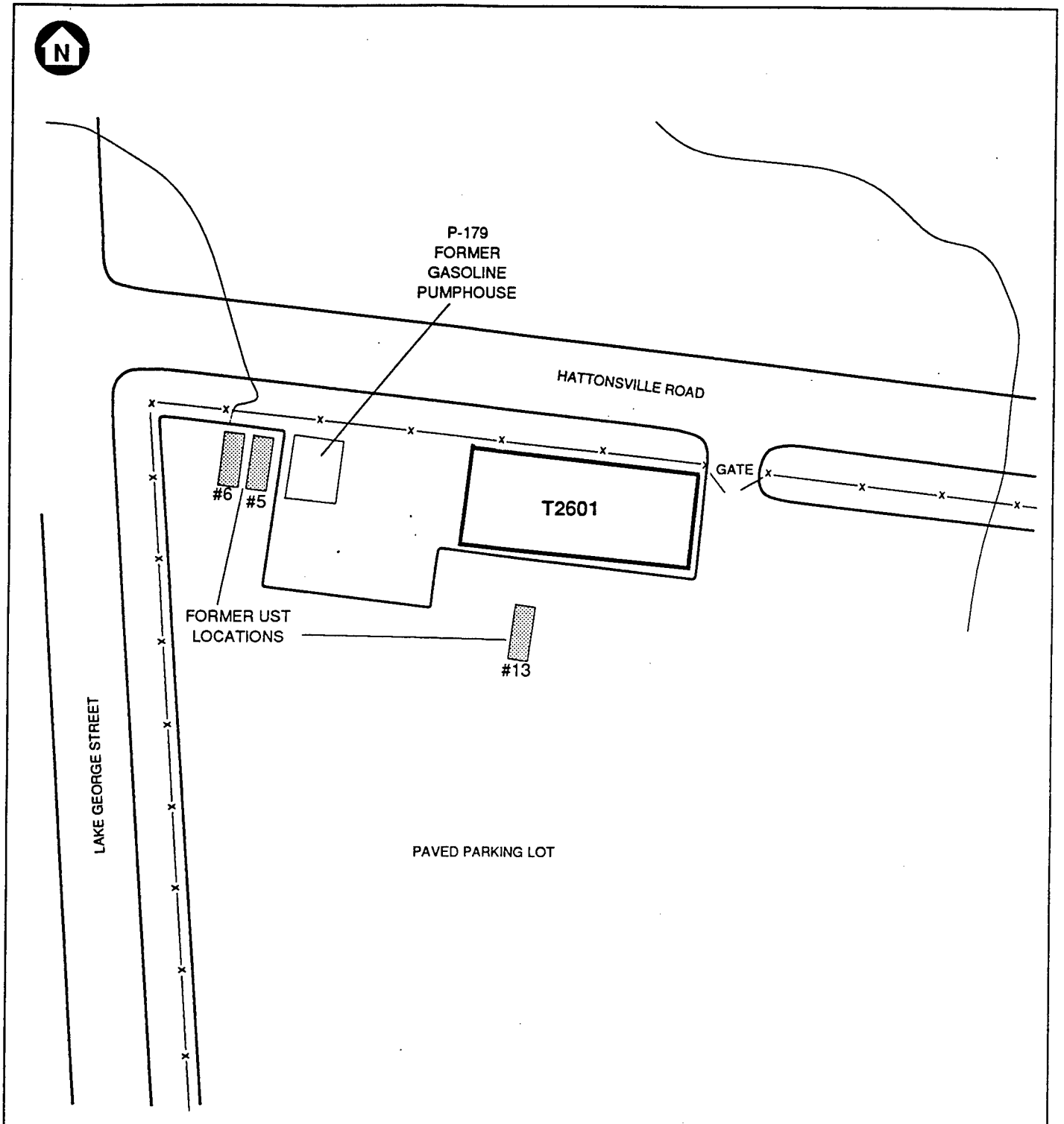


FIGURE 2-1
LOCATION OF FORT DEVENS
SA 43L DECISION DOCUMENT
FORT DEVENS, MA

9304049D(wm) 23

ABB Environmental Services, Inc.



SCALE IN FEET

0 60 120

FIGURE 2-2
LOCATION OF SITE SA 43L
SA 43L DECISION DOCUMENT
FORT DEVENS, MA

ABB Environmental Services, Inc.

9304049DI1